

Advanced Android App Development (60 hrs)

Module 1: Getting Started With Android

- Introduction to Android
- What is Android?
- History of Android
- Comparison with other Mobile OS
- Features of Android
- Setting up Development environment
- Downloading & Updating Android SDK
- How to do Plugin with eclipse
- Creating AVD

Module 2: Android Architecture

- Android Stack
- Applications
- Application Framework
- Libraries
- Android Runtime
- Linux Kernel
- Introduction to DVM
- What is .apk file?

Module 3:

- Creating First Android Application
- Project Structure
- Adding of external Libraries
- Introduction to AndroidManifest file

Module 4: Android Application Components

- Activities
 - Creating an Activity
 - Activity Life Cycle
- Intents & Intent Filters
 - Introduction to Intents
 - Types of Intents
 - Classification of Intent Filters
- Services
- Content Providers
- Broadcast Receiver

Module 5: User Interface

- XML Layouts
 - Linear Layout
 - Relative layout
 - Table Layout
- Widgets
- Creating List View

- Menus
- Creating Toast & Dialogs

Module 6: SQL Database

- Introduction to SQLite
- SQLiteOpenHelper and creating Database
- Working with Cursors, Insert, Update and Delete Operations

Exercise: Build an Application which keeps the record of total time of Activity displayed on the screen since it has been installed on the device.

Module 7: Advanced Application Components

- Content Providers
 - Accessing Native Application Data
 - Creating your Own Content Provider
 - Content Provider MIME types
- Services
 - Overview of Services
 - Implementing a Service
 - Service Life cycle
 - Types of Services
- Broadcast Receiver
 - What is Broadcast Receiver
 - Implementation of Receiver
 - Creating your own receivers
- Notifications

Module 8: Android Graphics and Multimedia

- Basic Graphics
- Playing Audio
- Playing video

Project:

- Media Player
- Alarm Clock
- Call Log Manager

Module 9: Advanced Topics

- Sensors
 - Introduction to Android Sensors
 - Types of Sensors
 - Accelerometer Sensor

- Reading X,Y,Z Coordinates
- Bluetooth
 - Setting Up Bluetooth
 - Finding Devices
 - Connecting Devices
 - Establishing connection as a server
 - Connecting as a client
 - Creating RFCOMM Communication

Module 10: Location and Maps

- Location Based App
 - Locate User Location
 - Obtaining user location using GPS
 - Obtaining user location using NPS
 - Get Latitude & Longitude
- Google Map
 - Generate MD5 Fingerprint
 - Use of MapView library
 - Set of Permissions for MapView
 - Entries in AndroidManifest file
 - How to register your fingerprint with Google Map
 - Generate API Key
 - Use of Google API

Projects:

- Bluetooth chat
- Audio Recorder
- Control Robots using Android Device

Module 11: Advanced User Interface

- XML Layouts
 - Frame Layout
 - Tab Layout
 - Scroll view
- Drawer
- Designing app for multiple screens

Module 12: Database

- Shared Preferences
 - Access database from assets
 - Perform CRUD operation with the database

Module 13: Android Graphics and Animations

- Basic Graphics
 - Font
 - Draw text with custom font
 - Use of different types of fonts
- Use of Android Themes
- Animation

Animation fade in, fade out
Animation Interpolator
Alpha Animation

Module 14: Hardware

- External Storage
- SD Card
 - Create a file in SD Card
 - Read a file from SD Card
 - Get Image from SD Card
- System Information
 - Get Disk Information
 - Get System Information
 - Get Telephone Information
- User Events
 - Touch
 - Single Touch Test
 - Use your finger to Draw
- Camera
 - Rendering Previews
 - Taking picture

Training Kit Contents: (Individual Kits)

- Comprehensive Study material covering all the discussed topics in a CD/DVD